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ABSTRACT

This paper describes the development of a research instrument designed to reveal student assessment of teacher behavior and to determine whether this can be correlated to student gain, as evidenced by pre- and posttest scores in the BSCS Third Quarterly Chievement Test. The experiment was carried out with ninth and tenth grade public school children enrolled in Green Version Biology (BSCS) within a 50-mile radius of Philadelphia and 21 of the 38 teachers invited to participate accepted. The paired-comparison technique was used, enabling frequencies to be tallied, and results were also analyzed and cross-validated. Detailed results, set out in eight tables, indicate that students recognize some teacher behaviors associated with student gain and that their opinions are stable, but there appeared to be no significant relationship between student opinion and student gain. It is recommended that the instrument be used in teacher training, in the development of standard definitions of teacher behavior, and to indicate different teaching patterns in relation to class gain. An appendix lists items used in the study and reproduces a student opinion form. Thirty bibliographic references are attached. (MBM)

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THE DEVELOPMENT OF AN INSTRUMENT DESIGNED TO SECURE STUDENT ASSESSMENT OF TEACHING BEHAVIORS THAT CORRELATE WITH OBJECTIVE MEASURES OF STUDENT ACHIEVEMENT

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INTRODUCTION

Because students interact with instructional materials, judgments are made about the materials and how they are presented. Students, therefore, could give feedback to educators concerning the merits of the materials and their presentation. Some recent findings (e.g., Fortune, 1965; Morsh, 1956; Podlogar, Rosenshine, and Gage, 1967) seem to indicate that student evaluations of teaching behaviors may be a correlate of pupil gain. Unfortunately, students rarely reveal these judgments to teachers. Were this done, one might ask whether the effects of pupil-teacher interaction on pupil scholastic achievement would change. The primary task of this investigation was the development of an instrument that would reveal student assessments of teacher behavior.

In order to determine if student opinion of selected teacher behaviors was a correlate of student gain, the following questions were investigated.

1. Can students recognize and assess teacher behaviors which have been empirically associated with student achievement?

2. Can an instrument which will secure student assessments of teacher behaviors be developed?

3. How stable are student assessments of teacher behaviors?

4. Which dimensions of the study instrument correlate significantly with objective measures of student achievement?

The following assumptions were made:

1. Teacher behavior is observable. Therefore, it may be recorded and categorized.

2. The teacher is in a position to exert a greater influence for achievement in his course than any other individual in the school.

3. By virtue of daily exposure and as the recipients of instruction, students are in the unique position of being able to provide the most valuable feedback dealing with teacher behavior

Definitions

1. Student Achievement . . . The difference between the pre- and posttest scores on the Third Quarterly Achievement Test,

2. High and Low Gainers . . . students whose scores place them in either the upper or lower 27 percent of the group.

3. Student Assessment . . . the frequency of selection of a given item of the study instrument.

4. Frequent and infrequent selections . . . For two administrations of the study instrument, items selected five or more times are considered frequent selections. Those selected less than five times are infrequent selections.

5. Teacher behavior . . . "the behavior . . . or activities of persons as they go about doing what is required of teachers, particularly those activities which are concerned with the guidance or direction of the learning of others (within a given discipline)" (Ryan, 1960, p. 15).

Following the format suggested by Tyler (1934) for evaluating human behavior, the study consisted of four major phases:

1. Defining the behavior to be assessed.

2. Determining the situations in which it may be expressed.

3. Developing an instrument to record the behaviors in these situations.

4. Testing the validity of the instrument.

Phase I: Defining Teacher Behaviors for the Current Investigation

In order to limit this phase to a manageable task, the following criteria were employed:

The teacher behaviors selected for the construction of items for the study instrument were to be definable, observable, recordable, and empirically related to student gain.

Therefore, the findings of the major investigators which attempted to relate teacher behavior to student gain were utilized in the construction of items for the study instrument. A listing of the behaviors that fulfilled this criteria and the studies from which they came may be found in Appendix A.

Although these behaviors appear to distinguish between teachers, there were many inconsistencies. Therefore, they could only provide crude guidelines for the construction of items.

Phase II: Determining the Situations

The relationship between teacher-behavior as previously defined and teacher influence on achievement (i.e., Assumption 2) indicated that the situation in which the defined teacher behavior is expressed is the daily classroom interaction between the teacher and the pupil.

Phase III: Constructing the Instrument

The principles and considerations utilized in the construction of the study instrument were as follows:

1. Application of the study criteria to teacher-behavior-student-gain investigations for the purpose of identifying relevant teacher behaviors and the construction of items from the identified behaviors.

2. Revision of items via recommendation of a committee of experts.

3. Establishment of six non-related items to test the study criteria. It was hypothesized that there would be no significant relationship between student responses to these items and pupil gain.

4. Because of the relative ease of construction, elimination of halo effect and leniency tendency, greater objectivity and simplification of judgments required of the respondent, the paired-comparison technique was selected as the instrument format for this investigation. The paired-comparison technique groups behavioral statements together and requires the respondent to compare two statements at a time. The respondent is required to select one member of the pair which best describes recent lessons. From these selections, frequencies may be tallied and the behaviors ranked according to their frequency.

5. Three forms of the instrument were constructed by randomizing the items in each form. In this way, control was gained over "order of item" as a direct factor in influencing the respondent (Ross, 1932).

6. A pilot study was conducted to test the readability and stability of the instrument. Two classes of tenth graders, having the same teacher, and enrolled in Green Version B. S. C. S. were utilized (N = 49).

Only four students selected a word or an item which they indicated they could not understand. Therefore the instrument appears to have been readable.

There were no significant differences between student assessments from the first to the second administration of the Pilot Instrument. Utilizing the Kruskal-Wallis ANOVA, the values of H ranged from .03 to .43. With df = k - 1 = 1, a value of 3.84 is needed for significance at .05 level. Therefore, differences obtained between the two administrations of the instrument could be attributed to chance variations which are to be expected from different samples of the same population.

Kendall's Tau coefficient was selected to measure the degree of association between the Rankings of Time 1 and Time 2. Tau = .71 which is significant beyond the .01 level. Therefore, some student assessments were stable over time.

Considering that only 48 hours had elapsed between administrations, 29 percent of the ranks were changing from Time 1 to Time 2. In order to eliminate unstable items, the instrument was analyzed by student's t-test and those items which fluctuated significantly ($p < .10$) were discarded. The 18 surviving items were reorganized into the final instrument. These items are shown in Appendix A preceded by an *. Once again, the tables developed by Ross (1932) were employed in constructing three equivalent forms of the instrument.

FINAL DEVELOPMENT OF THE STUDY INSTRUMENT

Phase IV: Testing the Validity of the Instrument

A full scale validation of the instrument was not attempted in this investigation (e.g., concurrent validity). Estimates of validity were determined via a cross-validation technique.

The subjects were ninth and tenth grade public school children enrolled in Green Version Biology (B. S. C. S.). All available teachers of first and second class districts within fifty miles of Philadelphia were invited to participate and 21 of 38 accepted. Only one teacher withdrew during the investigation. One intact class from each instructor's roster was selected via a random number table. Each teacher devoted approximately 2,400 minutes of instruction to the selected

chapters. Two equivalent forms of the BSCS Third Quarter Achievement Test were available for pre-and posttesting. The designation of a form as either pre- or posttest was randomized. The student opinion instrument was administered twice during the course of the unit. The days on which the classes reacted to the instrument were randomized.

Treatment of Data

(a) Achievement Test . . . The difference between the posttest scores and the pretest scores constituted the criterion of achievement for a given student.

(b) Initial Class Standings . . . ANOVA of the pre-test means indicated that there were significant ($p<.01$) initial differences between classes. This datum is summarized in Table 1.

TABLE 1

ANOVA OF PRETEST PERFORMANCE OF PARTICIPATING CLASSES

SOURCE OF VARIATION	df	SS	MS	F
Between Classes	19	2130.82	112.14	7.04**
Within Classes	525	8351.18	15.90	
TOTAL	544	10482		

**$p<.01$

Tukey's Tests (i.e., significant gap, stragglers and excessive variability) revealed that the classes clustered into Two Groups. The intact classes of each Group were not significantly different from each other but there were significant differences between Groups. Each intact class within a Group was then assigned to either the item analysis phase, cross-validation phase or recheck phase. This was accomplished by dividing a Group into two subsamples. One subsample of intact classes, from each Group was assigned to a particular phase. In this way, each Group was represented in each phase. The criteria for phase assignment

was that all classes used in the cross-validation phase had to have taken the same form of the pre-test and posttest (e.g., all classes used form S as a pre-test. The same classes used form R as a posttest). Failure to employ this criteria would have made correction for attenuation impossible. These assignments are summarized in Table 2.

TABLE 2

PHASE ASSIGNMENTS

GROUP	ITEM ANALYSIS PHASE	CROSS VALIDATION PHASE	RECHECK PHASE
I	Sub-Sample A(N=100)[a] (Classes 1,2,3,4,8, 9,12)	Sub-Sample B(N=126) (Classes 10,11, 15, 18,19)	Sub-Sample A(N=184) (Classes 1, 2,3,4,8,9, 12)
II	Sub-Sample C(N= 64)[a] (Classes 5,6,16,17)	Sub-Sample D(N=76) (Classes 7,14,20)	Sub-Sample C(N=103) (Classes 5,6, 16,17)

[a] N's used in the item analysis phase are equal to 54% of available students in those classes. The N's for cross-validation and recheck phases are all available students in those classes.

(c) Student Opinion Instrument--After two administrations, the frequency of item selection was computed as a measure of pupil assessment. Kendall's Tau was employed to evaluate consistency over time. Across all classes, Tau = .94 for the entire instrument.

TABLE 3

TAU FOR THE ENTIRE INSTRUMENT
(N = 550)

ITEM	F	E	C	D	B	E	B	E	F	F	D	C	C	A	A	A	D	B
SCALE	om[a]	om	in[b]	ev[c]	in	in	ev	ev	ev	in	om	om	ev	in	ev	om	in	om
Rank T_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Rank T_2	1	3	2	5	7	4	6	9	8	12	14	10	11	15	13	16	17	18

Tau Coefficient .94

[a]om = omnibus
[b]in = instruction
[c]ev = evaluation

(d) Test for Linearity--Three items were selected at random and tested for linearity in order to determine if product-moment coefficients were appropriate. The low values of F (e.g. in each case F<1) indicated that the column means did not deviate significantly from the regression line.

(e) Item Analysis Phase--The opinion responses of the upper and lower 27 percent of Subsamples A (Group I) and C (Group II) were analyzed to determine if items were systematically selected or rejected (Flanagan, 1939). Seven items were found to significantly discriminate between high and low gainers in either one or the other subsample. No item discriminated across Subsamples (i.e., Groups). These data are summarized in Table 4.

TABLE 4

SUMMARY OF NORMALIZED BISERIAL COEFFICIENTS OF CORRELATION AS DETERMINED FROM THE PROPORTION OF RESPONSES IN UPPER AND LOWER 27 PER CENT OF SUB-SAMPLES A AND C CORRECTED FOR COARSE GROUPING

SCALE	SUB-SAMPLE A (N = 100)	SUB-SAMPLE C (N = 64)
OMNIOUS		
A . . .Starts new work. . .	.260**	.174
B . . .Allows enough time. . .	.072	.062
C . . .Friendly. . .	.273**	.075
D . . .Organizes the lesson. . .	.000	.000
E . . .Uses examples to help. . .	.075	.000
F . . .Answers our questions. . .	.000	.075
INSTRUCTION		
A . . .States purposes. . .	.162	.275*
B . . .Shows us new ways. . .	.162	.236
C . . .Asks questions to whole class. .	.100	.000
D . . .Follows the rules. . .	.137	.087
E . . .Reviews important ideas. . .	.000	.273
F . . .Speed of lesson comfortable. . .	.050	.285*
EVALUATION		
A . . .Different sides of problems. . .	.211*	.112
B . . .Asks for evidence. . .	.273*	.119
C . . .Gives praise and encouragement.	.162	.112
D . . .Encourages interpretations. . .	.037	.025
E . . .Does not make fun of answers. .	.025	.087
F . . .Does not interrupt. . .	.137	.162

* .05>p>.01
* p<.01

(f) Cross-Validation--The seven discriminating items were cross-validated using Subsample B (Group I) and D (Group I). Utilizing the point biserial correlation coefficient and correcting for both coarse grouping and attenuation, only two items maintained their significance. No item was significant across Subsamples (i.e.; Groups). These data are reported in Table 5.

TABLE 5

POINT BISERIAL CORRELATION COEFFICIENTS FOR SUB-SAMPLES B AND D CORRECTED FOR COARSE GROUPING AND ATTENUATION

ITEMS	(NEW WORK)	(FRIENDLY)	INSTRUCTION A (PURPOSES)	INSTRUCTION E (REVIEWS)	INSTRUCTION F (SPEED)	EVALUATION A (PROBLEMS)	EVALUATION B (EVIDENCE)
Sub-Sample D (N=126)	-.05	-.06	-.16	-.05	.00	.22*	.01
Sub-Sample D (N= 76)	-.12	-.15	.39**	.07	.05	.03	.12

** p<.01
* .05>p>.01

(g) Recheck Phase--The two significant items from the cross-validation phase were re-evaluated using all the students in Subsamples A (Group I) and C (Group II). Neither item maintained its significance. (See Table 6)

TABLE 6

COEFFICIENTS OF CORRELATION FOR THE RECHECK PHASE OF THE INVESTIGATION

Sub-Sample	N	COEFFICIENTS OF CORRELATION Evaluation A (Problems)	Instruction A (States Purposes)
A	184	.03	
C	103		-.12

Reliability of Student Assessments

In order to measure reliability, it was necessary to have two independent measures, obtained from equivalent opinion forms for every student. To satisfy these conditions, three equivalent forms of the instrument were constructed and were administered twice. The Tau coefficient of .94 represents the measure of agreement in rankings at Time 1 with another set of rankings (obtained at Time 2) on an equivalent opinion obtained from each member of the same class.

Validity of Student Assessments

(a) Content Validity . . . the study's criteria of item construction allowed for adequately sampling a specified Universe of Content. With the exception of the "No-Relationship" Category, items like those employed in the study instrument appeared to belong in a measuring device which sought to obtain opinion dealing with teacher behavior as defined by the study criteria.

(b) Face Validity . . . Since pupils are in a position of noting the relative frequency of teacher behavior, their assessment of these behaviors according to the frequency of occurrence is valid. Therefore, in terms of face validity, i.e., what an instrument appears to measure, the student responses seem to

represent their accurate answers relative to pupil opinion concerning the issues raised by the study instrument.

(c) Predictive Validity . . . Since no consistent relationship was found between opinion and student gain, the study instrument lacked significant predictive validity.

Summary of Findings

1. Of the seven items found to discriminate between high and low gainers in either Group I or Group II (i.e., Item Analysis Phase), six were derived from observable, definable, and recordable teacher behaviors which have been empirically associated with student gain ($p = .06$).

2. There was no evidence to indicate that the pupil responses obtained by the study instrument were not their true opinions concerning the issues raised in the instrument (e.g., face validity).

3. Tau coefficient for the entire instrument was .94. This is a measure of agreement between the rankings obtained at Time 1 and those obtained at Time 2--across all participating classes. This is significant beyond the .01 level.

4. (a) Seven items were seen to discriminate between high and low gainers in either one or the other group in the item analysis phase. No item discriminated across groups.

   (b) Two of the discriminating items maintained their significance in the cross-validation phase. Neither item discriminated across groups.

   (c) Both of the cross-validated items failed to maintain significance when rechecked using a different sample

Conclusions

1. Students seem to be able to recognize some teacher behaviors which have been empirically associated with student gain.

2. It is possible to build an instrument which has face and content validity and which will secure student assessments of teacher behavior.

3. Student opinion of teacher behaviors are very stable over time ($p<.01$).

4. There is no consistent significant relationship between student opinion of teacher behaviors as measured by the study instrument and student gain as measured by the achievement test.

Discussion

Is there a relaionship between student opinion of teaching behaviors and student gain?

Pupil opinion of teaching behavior would seem to have a low and inconsistent relationship with pupil's gain as measured by the Achievement Test. Although these findings differ from Fortune (1966) and Rosenhine (1967), who found student ratings of clarity of aims and organization to be related to gain, students reacted to the Appraisal Guide after they took the Achievement Test. It is possible that their ratings of the lesson were influenced by their perception of how well they achieved. If this is so, the students who achieved more might have tended to rate clarity of presentation high.

Remmer's (1963) assertion of a low and positive relationship ($r = .20$) between the mean objectively measured achievement of students and their ratings of college chemistry teachers appears to differ with the findings of this investigation. Although both the Purdue Rating Scale and the current Student Opinion Instrument deal with pupil opinion, the former requires a qualitative value judgment (i.e., scaled from Excellent to Poor) whereas the latter solicits a quantitative value judgment (i.e., select the member of the pair most true of recent lessons). Therefore, the investigations cannot be directly compared since they had different aims and employed different measuring techniques.

Classroom Climate -- A Rival Hypothesis

Failure of opinion items to maintain significance across groups and phases of this investigation led to the formation of different classroom climates accounting for student gain. This was evaluated by determining if classes above the median gain tended to select items that classes below this mark did not. Only one item (i.e., "This teacher asks questions to the whole group before choosing a student to answer."), was selected consistently (i.e., seven of nine) by classes above the median gain. Only one class below the median selected this as the most frequent behavior of their teachers.

As a further evaluation, the average class gain was correlated with the average class ranking of the opinion items. Only one item was significant ($r = -.52$). Six items correlated .30 or better (with $n = .19$, an $r = .43$ is needed at the .05 level). These items may be somewhat suggestive of a classroom climate variable. The Evaluation Scale, i.e., teacher feedback to students, had correlations which ranged from .17 to -.52. As a whole it showed the strongest possibilities of different climates. It is also interesting to note that these items were the most stable items in the pilot study. Therefore, although the data does not support a full commitment to the rival hypothesis, there seemed to be suggestive trends in this direction.

These findings are reported in Tables 7 and 8.

TABLE 7

THE ITEMS MOST FREQUENTLY SELECTED BY EACH CLASS

CLASS NUMBER	AVERAGE GAIN	MOST FREQUENTLY SELECTED ITEMS		
		OMNIBUS	INSTRUCTION	EVALUATION
12	0.3	F	C	D
8	9.0	A	E	B
5	9.0	F	C	D
7	8.0	F	C	B
20	7.8	E	C	D
1	6.3	F	C	B
2	5.7	C	B	D
15	4.4	F	C	E
9	4.4	F	C	F
3	4.3[a]	F	B	D
14	4.0	F	C	D
6	2.4	F	F	E
10	2.4	F	E	D
11	2.1	F	B	D
19	2.1	F	F	C
18	1.7	F	E	F
16	0.5	F	E	B
17	0.3	F	B	D
4	0.0	F	B	D

[a]Median Score = 4.3. For this analysis, high gaining classes were those who scored above the median. Low gaining classes were those who scored below the median.

TABLE 8

CORRELATION BETWEEN AVERAGE CLASS ASSESSMENT
AND AVERAGE CLASS GAIN
(N = 19)

ITEMS	A	B	C	D	E	F
Omnibus	.01	-.08	-.03	-.03	.34	-.33
Instruction	.13	-.07	.31	-.11	.08	-.37
Evaluation	-.52	.26	.30	.17	.17	-.20

Recommendations

1. Development of standard definitions in teacher behavior research. An examination of the current teacher-behavior-student-gain literature revealed inconsistencies (e.g., Jayne, 1946; Spaulding, 1963; Flanders, 1960). Since part of the problem may be caused by a lack of standard definitions, there appears to be a need for a "dictionary" of teacher behaviors that could be applied to studies of teaching. Once defined, a number of the basic studies could be profitably replicated in order to determine if commonality of findings exist.

2. Utilization of the study instrument in teacher training and in-serve settings.

Although the study instrument lacked predictive validity, it may still have value as a source of feedback to teachers. Its high reliability and face validity could provide the instructor with information concerning the relative frequencies of certain teacher behaviors. Based upon this information and the teacher's objectives, changes in instructional techniques could be employed and rechecked by a second administration of the instrument.

Additional use may be found in the area of teacher training. Since the instrument contains items generally regarded as positive teacher behaviors, it could provide descriptive feedback for the student-teacher and indicate areas of behavior that should be employed with greater frequency.

3. Re-evaluation of the student opinion instrument within the following contexts:

   a) Determination if there is a relationship between the mean achievement of a class and the mean class assessments of the teacher--holding initial ability constant. It is possible that the instrument might indicate different patterns of teaching among classes which gain more and those which gain less--particularly if the items are examined in combination rather than singly.

   b) It is possible that students who gain more may be those who understand what the teacher is trying to achieve during instruction. If this is the case, it would be interesting to see if agreement (or disagreement) between pupil and teacher responses on the study instructment is related to gain.

APPENDIX

INITIAL ITEMS AND THE STUDIES FROM WHICH THEY WERE DERIVED

	Items	Study	Behavior
*	1. When we start new work, this teacher helps us to see why the work is important to all of us.	Furst, 1967	Moderate Structuring
	2. This teacher listens carefully to our ideas and attempts to tie them in with her own.	Flanders, 1960; Furst, 1967; Sears, 1963	Indirect Listening
	3. This teacher helps us to see things from several different points of view.	Sears, 1963	Intellectual
	4. This teacher feels that my ideas are worthwhile.	Soar, 1966	Verbal Hostility and Criticism
	5. This teacher encourages me to take part in classroom activities.	Furst, 1967; Flanders, 1960	Pupil Participation
*	6. This teacher allows us enough time to develop our thoughts and ideas.	Bellack, 1965; Furst, 1967	Pacing
	7. When the teacher starts a new part of the lesson, I receive enough information to help me understand what is happening. It is neither too much nor too little information.	Furst, 1967	Moderate Structuring
*	8. This teacher states the purposes of the lesson.	Podlogar Rosehshine, 1967	Clarity of Aims
	9. This teacher quotes material from sources other than our textbook.	Jayne, 1946	Meaningful Discussion

A-1 Continued

	ITEMS	STUDY	BEHAVIOR
10.	This teacher's lectures are business-like. They are right to the point.	Spaulding, 1963	Instructing
11.	This teacher uses words that I can understand.	Fortune, 1966; Rosenshine, 1967	Clarity of Presentation
* 12.	This teacher asks questions to the whole class before choosing students to answer.	Morsh, 1956	Alertness Factor
* 13.	This teacher shows us new ways of looking at familiar things	Sears, 1963	Intellectual Behaviors
14.	This teacher spends most of the period in stating facts and explaining them.	Furst, 1967; Jayne, 1946	Multiple Cognitive Levels
* 15.	This teacher wants us to follow the rules. He checks how we get our answers as well as the answer itself.	Spaulding, 1963	Instructing Behaviors
16.	This teacher repeats key points.	Hayes, 1966	Summarizing Behaviors
* 17.	This teacher reviews important ideas and facts at the end of the lesson.	Hayes, 1966	Summarizing Behaviors
* 18.	This teacher's speed of conducting the lesson is comfortable. It is neither too fast nor too slow.	Furst, 1967; Bellack, 1965	Moderate Pacing
* 19.	This teacher encourages us to look at different sides of a problem before we make up our minds.	Sears, 1963	Intellectual
* 20.	This teacher asks for evidence in support of our ideas.	Jayne, 1946	Meaningful Discussion

A-1 Continued

	ITEMS	STUDY	BEHAVIOR
* 21.	This teacher gives us encouragement and praises our effort. He does not immediately criticize a wrong answer.	Furst, 1967; Flanders, 1960	Positive Immediate Feedback Indirect Behavior
* 22.	When solving problems, this teacher encourages us to make interpretations and apply them to new situations.	Soar, 1966; Furst, 1967	Unnamed Multiple-Cognitive Levels
* 23.	This teacher does not make fun of my answers.	Soar, 1966	Verbal Hostility
* 24.	This teacher does not interrupt me until I have finished speaking.	Furst, 1967	Pupil Participation

A-2

ITEMS HYPOTHESIZED TO HAVE NO RELATIONSHIP TO LEARNING

	ITEM	SOURCE
* 1.	This teacher is friendly.	Investigator
* 2.	The way this teacher organizes the lesson helps me to understand the ideas.	Fortune, 1966
3.	This teacher gives fair grades.	Remmer, 1963
4.	This teacher defines new words.	Investigator
* 5.	This teacher uses many examples to help us learn.	Morsh, 1956
* 6.	This teacher tries to answer all our questions.	Morsh, 1956

STUDY INSTRUMENT

STUDENT OPINION FORM A

Directions: On the following pages are three groups of statements representing things teachers do. Examine all the statements in a group by comparing them to each other two at a time. Select the <u>one</u> statement from <u>each</u> pair which is the best description of recent lessons. Circle your choice on the answer sheet.

Example

A	A-This teacher often lectures. B-This teacher gives outside readings.
B	C-This teacher gives fair tests. A-This teacher often lectures.
C	A-This teacher often lectures. D-This teacher rarely gives homework.
D	B-This teacher gives outside readings. C-This teacher gives fair tests.

Answer Sheet
Group I

1. A or (B)
2. C or A
3. A or D
4. B or C

FIGURE I

This student believes (see Figure 1) that when A and B are compared, B is more true of his teacher than A. In a similar manner, he selects one statement from <u>each</u> pair.

Remember:

1. Read each pair of statements carefully.
2. Select only <u>one</u> member of <u>each</u> pair.
3. Answer <u>all</u> questions.

AS IN ALL RESEARCH DEALING WITH OPINIONS, YOUR INDIVIDUAL RESPONSES WILL BE KEPT CONFIDENTIAL.

1. A-When we start new work this teacher helps us to see why the work is important to all of us.
   B-This teacher allows us enough time to develop our thoughts and ideas.

2. F-This teacher tries to answer all our questions.
   D-The way this teacher organizes the lesson helps me to understand the ideas.

3. E-This teacher uses many examples to help us learn.
   A-When we start new work this teacher helps us to see why the work is important to all of us.

4. C-This teacher is friendly.
   B-This teacher allows us enough time to develop our thoughts and ideas.

5. E-This teacher uses many examples to help us learn.
   F-This teacher tries to answer all our questions.

6. A-When we start new work this teacher helps us to see why the work is important to all of us.
   C-This teacher is friendly.

7. B-This teacher allows us enough time to develop our thoughts and ideas.
   D-The way this teacher organizes the lesson helps me to understand the ideas.

8. F-This teacher tries to answer all our questions.
   A-When we start new work this teacher helps us to see why the work is important to all of us.

9. D-The way this teacher organizes the lesson helps me to understand the ideas.
   C-This teacher is friendly.

10. E-This teacher uses many examples to help us learn.
    B-This teacher allows us enough time to develop our thoughts and ideas.

11. A-When we start new work this teacher helps us to see why the work is important to all of us.
    D-The way this teacher organizes the lesson helps me to understand the ideas.

12. C-This teacher is friendly.
    E-This teacher uses many examples to help us learn.

13. B-This teacher allows us enough time to develop our thoughts and ideas.
F-This teacher tries to answer all our questions.

14. D-The way this teacher organizes the lesson helps me to understand the ideas.
E-This teacher uses many examples to help us learn.

15. C-This teacher is friendly.
F-This teacher tries to answer all our questions.

16. A-This teacher states the purposes of the lesson.
B-This teacher shows us new ways of looking at familiar things.

17. F-This teacher's speed of conducting the lesson is comfortable. It is neither too fast nor too slow.
D-This teacher wants us to follow the rules. He checks how we get our answers as well as the answer itself.

18. E-This teacher reviews important ideas and facts at the end of the lesson.
A-This teacher states the purposes of the lesson.

19. C-This teacher asks questions to the whole class before choosing students to answer.
B-This teacher shows us new ways of looking at familiar things.

20. E-This teacher reviews important ideas and facts at the end of the lesson.
F-This teacher's speed of conducting the lesson is comfortable. It is neither too fast nor too slow.

21. A-This teacher states the purposes of the lesson.
C-This teacher asks questions to the whole class before choosing students to answer.

22. B-This teacher shows us new ways of looking at familiar things.
D-This teacher wants us to follow the rules. He checks how we get our answers as well as the answer itself.

23. F-This teacher's speed of conducting the lesson is comfortable. It is neither too fast nor too slow.
A-This teacher states the purposes of the lesson.

24. D-This teacher wants us to follow the rules. He checks how we get our answers as well as the answer itself.
C-This teacher asks questions to the whole class before choosing students to answer.

25. E-This teacher reviews important ideas and facts at the end of the lesson.
B-This teacher shows us new ways of looking at familiar things.

26. A-This teacher states the purposes of the lesson.
D-This teacher wants us to follow the rules. He checks how we get our answers as well as the answer itself.

27. C-This teacher asks questions to the whole class before choosing students to answer.
E-This teacher reviews important ideas and facts at the end of the lesson.

28. B-This teacher shows us new ways of looking at familiar things.
F-This teacher's speed of conducting the lesson is comfortable. It is neither too fast nor too slow.

29. D-This teacher wants us to follow the rules. He checks how we get our answers as well as the answer itself.
E-This teacher reviews important ideas and facts at the end of the lesson.

30. C-This teacher asks questions to the whole class before choosing students to answer.
F-This teacher's speed of conducting the lesson is comfortable. It is neither too fast nor too slow.

31. A-This teacher encourages us to look at different sides of a problem before we make up our minds.
B-This teacher asks for evidence in support of our ideas.

32. F-This teacher does not interrupt me until I have finished speaking.
D-When solving problems, this teacher encourages us to make interpretations and apply them to new situation.

33. E-This teacher does not make fun of my answers.
A-This teacher encourages us to look at different sides of a problem before we make up our minds.

34. C-This teacher gives us encouragement and praises our efforts. He does not immediately criticize a wrong answer.
B-This teacher asks for evidence in support of our ideas.

35. E-This teacher does not make fun of my answers.
F-This teacher does not interrupt me until I have finished speaking.

36. A-This teacher encourages us to look at different sides of a problem before we make up our minds.
C-This teacher gives us encouragement and praises our efforts. He does not immediately criticize a wrong answer.

37. B-This teacher asks for evidence in support of our ideas.
D-When solving problems, this teacher encourages us to make interpretations and apply them to new situations.

38. F-This teacher does not interrupt me until I have finished speaking.
A-This teacher encourages us to look at different sides of a problem before we make up our minds.

39. D-When solving problems, this teacher encourages us to make interpretations and apply them to new situations.
C-This teacher gives us encouragement and praises our efforts. He does not immediately criticize a wrong answer.

40. E-This teacher does not make fun of my answers.
B-This teacher asks for evidence in support of our ideas.

41. A-This teacher encourages us to look at different sides of a problem before we make up our minds.
D-When solving problems, this teacher encourages us to make interpretations and apply them to new situations.

42. C-This teacher gives us encouragement and praises our efforts. He does not immediately criticize a wrong answer.
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43. B-This teacher asks for evidence in support of our ideas.
F-This teacher does not interrupt me until I have finished speaking.

44. D-When solving problems, this teacher encourages us to make interpretations and apply them to new situations.
E-This teacher does not make fun of my answers.

45. C-This teacher gives us encouragement and praises our efforts. He does not immediately cirticize a wrong answer.
F-This teacher does not interrupt me until I have finished speaking.

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